ISSN 0317-2473

Discussion Paper No. 42

THE EFFECTS OF MARITAL DISSOLUTION ON SUICIDE: THE CANADIAN CASE

By
Frank Trovato

Department of Sociology
The University of Alberta
Edmonton, Alberta, Canada
T6G 2H4

June, 1985

ABSTRACT

THE EFFECTS OF MARITAL DISSOLUTION ON SUICIDE: THE CANADIAN CASE

This study replicates the analysis of Stack (1980) on the relationship between state variation in divorce and the rate of suicide. The application is to Canada, and the hypothesis evaluated is that the greater the provincial index of family dissolution, the greater the provincial suicide rate. Using provincial data for 1971 and 1978, it is found that this hypothesis receives strong empirical support. Controlling for education, religion, inmigration, and the provincial marriage rate simultaneously, the independent impact of divorce serves to raise the provincial rate of suicide such that a one percent increase in divorce contributes to a 1.11 percent gain in the suicide rate among the Canadian provinces during the late 1970s.

THE EFFECTS OF MARITAL DISSOLUTION ON SUICIDE: THE CANADIAN CASE

INTRODUCTION

Recently, Stack (1980) reported that during the 1970s divorce accounted for a significant main effect on the suicide rate among the 50 American states. It was found that the percentage currently divorced was independently associated with suicide even after the influences of age,[1] race, family income, and interstate migration were statistically accounted for. The purpose of this study is to provide a replication of Stack's research in the context of Canada during the early and latter part of the 1970s.

The present inquiry is based on Durkheim's (1966) proposition that the rate of self-destruction varies inversely with the degree of social integration in society, or among social groups in society. Although a direct test of the social integration construct is not possible (Gibbs and Martin, 1958; Gibbs, 1982), divorce is assumed to reflect one dimension of social integration, the degree of family integration. The inherent assumption is that ecological areas (e.g., states, regions, provinces, etc.) that have a relatively high divorce rate, experience relatively low levels of domestic integration in relation to places that are characterized by low levels of family dissolution. Consequently, the rate of suicide will be higher in the former settings than in the latter areas.

In Canada, there are significant provincial differences in divorce (Makabe, 1980; Trovato, 1985). The eastern region (with the exception of Nova Scotia), has persistently demonstrated low indices of family breakup, while Western and Northwestern provinces, such as Alberta, British Columbia and the Yukon, have generally maintained increasing probabilities of divorce.

The situation concerning suicide in Canada is consistent with an east-to-west pattern as well. The Spearman rank order correlation coefficient computed with the data in Table 1, for divorce and suicide, separately, over the two points in time, is +.94 and +.80, respectively; this suggests a high level of temporal stability in the rank ordering of these two measures. Thus, the higher a province's rank on suicide and divorce in 1971, the higher its rank on these two variables in 1978. The Rho coefficients between suicide and divorce is +.80 in 1971, and it is +.60 in 1978, suggesting a strong to moderate correlation between the provincial divorce rate and the provincial rate of suicide during the 1970s. Substantive interpretations for these relationships will be forgone until a later section of this study because it is necessary to execute a multivariate analysis first before definitive statements about the phenomenon are possible. It may be, for example, that these associations are spurious due to both the divorce and suicide rates being correlated with a third variable.

Although the relationship between divorce and suicide is ultimately a personal individual phenomenon, we agree with Wasserman (1984:854) that "if suicide is analyzed at the aggregate level, only aggregate-level interpretations of the findings are possible". The main objective in this research is to relate divorce to suicide at the provincial level. Individual level relationships are not made in this context; this must remain an important task for future study. For the time being, let us first ascertain the macro level relationship.

Variables in the Analysis

The main differences of this study from that of Stack (1980) is that (1) we include a religion variable, the percent Roman Catholic, as opposed to a race variable, the proportion black; (2) the percentage university educated is included instead of median income. The religion variable is meant to reflect

TABLE 1. SUICIDE AND DIVORCE RATES FOR CANADA AND PROVINCES, 1971 AND 1978

PROVINCE AND PERIOD	DIVORCE RATE*	STANDARDIZED SUICIDE RATE**
1971		
NEWFOUNDLAND	4.93	4.3
PRINCE EDWARD ISLAND	9.23	12.6
NOVA SCOTIA	14.72	9.1
NEW BRUNSWICK	9.66	7.5
QUEBEC	14.86	9.2
ONTARIO	26.70	13.4
MANITOBA	18.96	13.5
SASKATCHEWAN	12.29	7.9
ALBERTA	34.37	11.0
BRITISH COLUMBIA	40.40	16.4
YUKON	39.90	46.6
NORTH WEST TERRITORIES	16.80	14.6
TOTAL	22.47	11.5
1978		
NEWFOUNDLAND	11.58	2.7
PRINCE EDWARD ISLAND	16.53	14.4
NOVA SCOTIA	32.25	11.4
NEW BRUNSWICK	20.95	12.7
QUEBEC	33.55	12.7
ONTARIO	34.91	13.0
MANITOBA	26.36	13.9
SASKATCHEWAN	20.30	15.3
ALBERTA	43.49	15.7
BRITISH COLUMBIA	50.43	16.2
YUKON	39.75	26.4
NORTH WEST TERRITORIES	34.31	45.7
TOTAL	34.65	13.5

* Probability of divorce among the currently married multiplied by 100.

** Standardized for age; rates per 100,000 population.

the effect of socialization for low suicide risk. Stack applied the race variable to control for the possibility that low suicide rates at the state level may be due to a large percentage of blacks, who are known to have low suicide rates due to their externalization of aggression as opposed to intrapunitive aggression. We apply the percentage of a province's population that is Roman Catholic in the same way with the important exception that the socializing agent for Catholics is a religious doctrine that views suicide as a sin as opposed to conditions that arise from race relations as is the case for blacks. A further justification for the inclusion of a religion compositional variable as opposed to a race factor lies in the fact that Canada does not have a minority group that approximates the black case in the United States (i.e., a large minority that is geographically spread out throughout the nation). Thus in accordance with Durkheim (1966) our hypothesis is that the greater the proportion Roman Catholic in a given province, the lower the suicide rate.

The variable, percent university educated, is used as a substitute for an income measure due to the inavailability of this variable for the 1978 period of observation. In any case, this factor is known to be highly correlated with other socioeconomic variables such as occupation and income. Reviews of the literature by Stack (1982) and by others in the field (Maris, 1969; Lester, 1983) indicate that although it is not a perfect relationship, the association between socioeconomic status and suicide is generally inverse, especially in developed societies. Therefore, because of the association of education level with socioeconomic status in general, it is predicted that the greater the proportion of a province's population that is university educated, the lower the overall suicide rate. The inclusion of this variable is important for one other reason: the relationship between divorce and suicide may be due solely to the effects of education on both rates, thus contributing to a possible spurious relationship between family breakup and self-destruction.

A variable which was not considered by Stack (1980) is the marriage rate. In Canada, provinces vary in their rates of marriage and in other measures of nuptiality, such as age at first marriage and proportion never married (Statistics Canada, Vital Statistics Reports). Marital status has received wide application in both theoretical and empirical works in the field (Durkheim, 1966; Danigelis and Pope, 1979; Gibbs, 1982; Gibbs and Martin, 1958; Stack, 1982). It is generally agreed that the married population has relatively lower odds of suicide in relation to other marital status categories (Heer and MacKinnon, 1974) presumably due to their greater degree of domestic integration. The marriage rate, therefore, is assumed to reflect provincial differences in the degree of integration of the family institution. While divorce is known to have corrosive impacts on the family, the incidence of marriage may be regarded as an index of the importance of the family institution. Moreover, in a province where the marriage rate is consistently high, a certain number of divorcees will likely re-enter the married state (Schoen and Nelson, 1978; Adams and Nagnur, 1981). These processes would ultimately contribute to declining odds of mortality from suicide. The prediction is that the higher the rate of marriage for a given province, the lower the provincial suicide rate.

Another important determinant of suicide variation at the state or provincial level is the rate of inmigration (Stack, 1980a;b). Often, in ecological studies, the inmigration rate is employed as a proxy measure for rapid social change (Fenelon, 1971; Makabe, 1980; Trovato, 1985) because it is highly correlated with such developments as economic expansion, increasing opportunities, urbanism, and industrialization specific to a given locality. Following Stack's (1980:84; 1980c) approach, this variable is assumed to reflect "uprootedness, breaking of ties to relatives, friends and coworkers, and other changes resulting from long distance migration". Therefore, interprovincial

inmigration has some potentially negative consequences for the migrants, and these effects become intensified with long distance moves.[2] Assuming that this measure is an adequate index of long distance mobility, the greater the interprovince inmigration to a given area, the higher that area's suicide rate.

Methodology

In order to assess the relative importance of the variables above in accounting for suicide differences among Canada's provinces, a multiple regression analysis was executed. This was done in two steps. First, because the number of observations is only 24 (12 provinces observed 2 points in time), a series of bivariate regressions were computed consisting of time (a dummy variable coded as follows: 1=1978; 0=1971) as the predictor, and each of the other variables as dependent measures, separately. The residualized variables, including suicide, net of time's effect, were utilized in a subsequent multivariate regression analysis. This procedure allows for eliminating the temporal change on the variables, while at the same time, it reduces the number of variables in the equation, hence diminishing the likelihood of chance results when the number of predictors approximates the number of observations (Stack, 1980; Blalock, 1979).[3]

The dependent variable is the age standardized suicide rate per 100,000 population. As pointed out by Stack (1980), this measure contains males and females alike because it is assumed that both sexes are affected by the independent variables. It may be, however, that either sex's standardized rate may prove to be a more sensitive index of suicide at the provincial level. This question is left open for further exploration.

A word of caution is in order concerning the suicide statistics. Although the data are taken from official Statistics Canada publications, there is always the uncertainty that the extent of suicide reporting by each province is less

than complete. An evaluation by Brown (1975) suggests that there is some degree of unreporting and that overall, the actual rate is probably two to three points higher than that which appears in the published reports. The inability to control for this possible source of bias means that our results must be interpreted with some degree of caution.

The incidence of divorce, our main explanatory variable, is measured by the probability of marital dissolution among the currently married. This cumulative index, developed by Pressat (1972), is expressed as follows:

$$P = \frac{D_o}{\Sigma \alpha_i \mu_i}$$

where P is the probability of ever divorcing; D_o is the number of persons divorcing in a given period (i.e. year); α_i corresponds to the distribution of divorces in a given period by duration of marriage; and μ_i is the number of marriages that give rise to the duration specific number of divorces distributed in a given period.

The above measure is superior to the crude divorce rate because it takes into account the marriages that give rise to the observed divorces occurring in a given period -- a feature that is lacking in the crude divorce rate.

The index of interprovince inmigration is measured by the number of inmigrants to a given province divided by the resident population of the province. This is expressed per 100 population.

It was decided not to include an index of age composition because the suicide rate is already standardized for age.

Analysis

Table 2 shows the time residualized and non residualized intercorrelations of all the variables in the analysis along with their respective means and standard deviations. It is interesting to note that the differences in the

TABLE 2. INTERCORRELATIONS, MEANS, AND STANDARD DEVIATIONS FOR THE VARIABLES IN THE ANALYSIS

VARIABLES		(1)	(2)	(3)	(4)	(5)	(6)
SUICIDE	(1)	1.00	-.065	-.597	-.273	-.285	.533
MIGRATION	(2)	-.063	1.00	.556	-.152	.352	.557
% UNIVED	(3)	-.599	.555	1.00	.016	.416	.110
% RC	(4)	-.297	-.151	.020	1.00	-.307	-.255
MARATE	(5)	-.249	.407	.475	-.280	1.00	.058
PRODIV	(6)	.528	.618	.134	-.343	.359	1.00
X		15.26	4.96	9.53	38.49	8.27	25.20
S.D.		10.57	3.76	4.27	18.09	1.06	12.72

NOTE: Time residualized coefficients are below the diagonal; non-residualized coefficients are above the diagoral.

The suicide rate refers to the standardized rate per 100,000 population net of age;

Migration refers to the interprovincial inmigration rate per 100 population.

% UNIVED is the percent of a province's population that has university education;

% RC is the percent Roman Catholic; MARATE is the marriage rate per 1000 population; PRODIV is the probability of divorce per 100.

The data sources are: 1) Statistics Canada, Vital Statistics, Volume III: Deaths, 1971 and 1978; 2) 1971 and 1976 Public Use Sample Tapes of the Canadian Censuses; Also Published Census Data for Three Provinces not Included in P.U.S.T.: Prince Edward Island, Yukon, Northwest Territories; 3) Same as 2); 4) Same as 2); 5) Statistics Canada, Vital Statistics, Volume II: Marriages and Divorces, 1971 and 1978; 6) computed from Data Made Available by Statistics Canada.

The Means for the Residualized Variables Are All Zero.

correlations between the residualized and non residualized variables are minimal thus suggesting a negligible influence of time on these measures. Examining first the asociation between divorce and suicide, we see that there is a moderate degree of interrelation between the two variables (r=.533 and .528) and that the sign of the coefficient is in the predicted direction. The index of marital breakdown is also moderately associated with migration (r=.577 and .618); but this last measure is only weakly correlated with the dependent variable, and the sign of this association is inverse (r=-.065 and -.063). Therefore, we have preliminary indication that migration does not account for a spurious correlation between divorce and suicide. Concerning the intercorrelations for the other variables with the suicide rate, their zero order relationships are all in the expected direction; the only deviant case is migration. This outcome seems to contradict the notion that mobility is a disruptive phenomenon, which among other things, produces increasing risks of self-destruction (Stack, 1980a;b;c). However, it may be premature at this stage of the analysis to maintain strong conclusions on this issue due to the possibility that the small inverse correlation may be a function of suppressor effects. The main effects for the variables may change in magnitude and direction once they are subjected to a multivariate analysis.

Table 3 presents the regression results. Only two variables, the divorce index and the education measure, reach statistical significance at the .01 and .05 levels. A third variable, the marriage rate, comes extremely close to attaining a significant influence on the provincial suicide rate (significance level =.07).

The results in the table confirm the hypothesis that the higher the provincial divorce rate, the higher the likelihood of suicide for a given province's population. Even after the influence of controls such as migration,

TABLE 3. MULTIPLE REGRESSION ANALYSIS OF THE PROVINCIAL SUICIDE RATE, 1971-1978

Variable	b	s.e.b.	t	B	Contribution to Overall R^2
MIGRATION	-.48563	.478	-1.020	-.174	1.6%
% UNIVED	-1.17218	.367	-3.194	-.478*	36.0%
% RC	-.07562	.069	-1.098	-.129	.4%
MARATE	-2.98310	1.553	-1.921	-.256**	3.0%
PRODIV	.67337	.139	4.844	.747*	38.0%
				TOTAL =	79.00
INTERCEPT		2.30973			
R^2		.79			
R^2 ADJUSTED		.74			
F REGRESSION		13.836			
d.f.		5/18			

* Statistically significant at the .01 level.

** Statistically significant at the .07 level.

religion, education and marriage are taken into consideration simultaneously, divorce accounts for 36% of the overall variance explained in suicide (R^2=.79; adjusted R^2=.74). The standardized Beta weight for this variable is the strongest (β=.747), in relation to the other variables in the equation.[4] Stack (1980) derived similar results for the United States. In his study, divorce showed the strongest Beta weight in relation to four other variables. Given this concurrence, the present research provides further support for the relevance of the domestic integration theory in explaining suicide differentials at the provincial and state levels of analysis.

The proportion of a province's population that is university educated emerges as the next most powerful predictor of suicide differences in Canada during the 1970s. It accounts for 38% of the overall explained variance in the dependent variable, but its Beta weight is -.478. In accordance with our discussion concerning this variable's relationship to suicide, it was argued that it is largely a reflection of socioeconomic status measures such as income and occupational specialization.[5] The hypothesis that the higher a province's proportion of university educated persons, the lower its overall suicide rate is supported.

The migration measure is found to be statistically nonsignificant in accounting for provincial variation in suicide in Canada. Our initial concern was that this variable may account for both suicide and divorce. As far as the results of the analysis are concerned, this is not of crucial relevance. If anything, migration may have an indirect impact on suicide only through divorce. Stack (1980) came to the same conclusion when he found that interstate inmigration had only a small, but positive, insignificant direct effect on the suicide rate.

In his study, Stack (1980) applied a race variable (percent black), to control for the influence of subculture socialization for low suicide propensity. In this inquiry, the percentage of a province's population that is Roman Catholic was used in a similar way. No support for a Catholic effect is evident from the results in Table 3. Perhaps, a more relevant measure would be religiosity because in recent decades religious denomination has probably become a less relevant factor in accounting for suicide differentials (Stark et al., 1983).

The marriage rate was entered in the analysis because it represents the extent to which ecological areas provide strong inducements for family formation, hence family integration. The hypothesized relationship that the higher the marriage rate, the lower the provincial suicide rate, is, for all practical purposes, supported. While divorce accounts for an increasing suicide level amongst a province's population, marriage has the opposite impact, but its strength is much lower than the force of divorce. Stack (1980) did not consider the inclusion of this measure. In future research, in both Canadian and American settings, it may be fruitful for investigators to pay more attention to the role of marriage trends in accounting for area variation in suicide. Perhaps, more importantly, we should condider the potential relevance of the remarriage rate. A hypothesis worth pursuing at both micro and macro levels of analysis is that the higher the propensity to remarry, the lower the suicide potential. Although in this study, it was not possible to separate the remarriage component from the marriage rate, it must be recognized that the latter contains a remarriage component. Perhaps divorce is lethal for certain people; those who envisage strong possibilities of remarriage may actually suffer less from the stresses associated with the dissolution of marital unions than those who consider the prospects of remarriage unlikely.

As suggested by Stack (1980), one way to demonstrate the potential impacts of marriage and divorce on suicide is to compute the elasticity coefficients for these two measures and thus see how a percentage change in either rate translates into a change in the rate of suicide. A percent increase in the marriage rate would lower a province's suicide level by .73 percent, whereas a one percent increase in divorce would have the effect of raising the rate of self destruction by 1.11 percent.

CONCLUSION

The main purpose of this paper was to provide a replication of Stack's research for the United States in the context of Canada. In concurrence with Stack (1980), we found strong support for the hypothesis that areas in Canada with high rates of marital dissolution are characterized by increasing odds of suicide. This finding is substantively pertinent to the Durkheimian theory concerning integration in the family institution and the rate of suicide. While it is not advisable to extend inferences from our aggregate data to the individual level of analysis, our results suggest that divorce is a potentially psychologically destructive process for many individuals, and that the experience itself of severing marital ties leads to a significant number of suicides in both Canada and the United States.

An important finding in this study was that increasing the proportion of university educated persons in society would have a negative effect on suicide, presumably because the more educated have greater resources, financial and nonmaterial, to cope with psychological trauma in general. Also, the highly educated are less likely to divorce than the less educated in society. Thus the overall effect of increased education would be to lower both divorce and suicide.

In addition to this relationship, we found further support for the importance of the social integrative function of the marital institution in that the marriage rate serves to lower a province's rate of suicide even after divorce and other relevant controls are taken into account. Our suggestion is that future studies ought to examine in greater detail the importance of marriage and remarriage on the propensity to self-destruct.

FOOTNOTES

1. Actually, Stack found that the age variable, the percent aged 65 and above, did not have a significant impact on suicide. Although he did mention a reason for this outcome, in my view, there should not be a significant net relationship between this variable and suicide rates bacuase the latter measure was already standardized for age. When age standardization is initially applied to state suicide rates, the effect of age is eliminated and therefore, an age variable in a regression equation is redundant. Since in this study we utilize age standardized rates of suicide, an age variable is not introduced in the analysis.

2. Note, however, that the interprovince migration rate is not a perfect measure of long distance mobility because a significant number of moves involve changes in residence between contiguous provinces. However, if we consider that any move involving the crossing of provincial boundaries implies "adjustment" to "psychological distance" from the origin, the measure is appropriate (cf. Goldscheider, 1971).

3. The variables in the analysis were residualized to remove the effect of time since the observations pertain to 1971 and 1978. Below are the time-variables equations used to residualize the variables:

Dependent Variable	(a)	(b)	r	R^2
Suicide	13.84167	2.83333	.137	.019
PDIV	19.22917	10.13833	.407	.166
Marat	7.82500	-1.11667	-.536	.290
Migration	5.01667	-.11833	-.016	.0003
% Unived	9.64417	-.23500	-.028	.0008
% RC	36.0900	4.79750	.135	.018

4. The interpretation of Beta weights is hampered when there exists a high degree of multicollinearity among independent variables. Tests for this possibility were undertaken and proved negative. An indication of the lack of multicollinearity may be gained from the fact that none of the correlations in Table 2, is above .62.

5. Although family income could not be introduced in the analysis due to lack of data for 1978, this variable was available only for 1971. The correlation coefficient between income and education for 1971 was found to be .61, thus suggesting a substantial degree of collinearity between these two variables.

REFERENCES

Adams, O.B. and D. Nagnur
1981 Marriage, Divorce and Mortality: A Life Table Analysis for Canada, 1975-1977. Ottawa: Statistics Canada.

Blalock, H.M.
1979 Social Statistics. New York: McGraw-Hill.

Brown, M.B. Jr.
1975 "Reporting of suicide: Canadian statistics", Suicide 5(1):21-28.

Danigelis, N. and W. Pope
1979 "Durkheim's theory of suicide as applied to the family: an empirical test", Social Forces 57(4): 1081-1106.

Durkheim, E.
1951 Suicide. Translated by J.A. Spaulding and G. Simpson. New York: The Free Press.

Fenelon, B.
1971 "State variation in divorce rates", Journal of Marriage and the Family 33:321-327.

Gibbs, J.P.
1982 "Testing the theory of status integration and suicide rates", American Sociological Review 47:227-237.

Gibbs, J.P. and W.T. Martin
1958 "A Theory of status integration and its relationship to suicide", American Sociological Review 23:140-147.

Goldscheider, C.
1971 Population, Modernization and Social Structure. Boston: Brown-Little.

Lester, D.
1983 Why People Kill Themselves: A 1980 Summary of Research Findings on Suicidal Behaviour. Springfield, Illinois: Charles C. Thomas Publisher.

Makabe, T.
1980 "Provincial variations in divorce rates: a Canadian case", Journal of Marriage and the Family 42:171-176.

Maris, R.W.
1969 Social Forces in Urban Suicide. Homewood, Illinois: The Dorsey Press.

Pressat, R.
1974 A Workbook in Demography. London: Methuen.

Stack, S.
1980a "The Effects of marital dissolution on suicide", Journal of Marriage and the Family 42:83-92.

Stack, S.
1980b "Interstate migration and the rate of suicide", International Journal of Social Psychiatry" 26:17-26.

Stack, S.
1980c "Domestic integration and the rate of suicide: a comparative study", Journal of Comparative Family Studies 11:249-260.

Stack, S.
1981 "Divorce and suicide: a time series analysis, 1933-1970", Journal of Family Issues 2:77-90.

Stack, S.
1982 Suicide: A decade review of the sociological literature", Deviant Behaviour: An Interdisciplinary Journal 4:41-66.

Stark, R.
1983 "The effect of the decline in institutionalized religion on suicide, 1954-1978", Journal for the Scientific Study of Religion 22(3):239-252.

Trovato, Frank
1985 "The relationship between migration and the provincial divorce rate in Canada, 1971 and 1978: a reassessment", Population Research Laboratory, Department of Sociology, The University of Alberta, Edmonton, Canada. Discussion Paper No. 39.

Wasserman, Ira M.
1984 "A longitudinal analysis of the linkage between suicide, unemployment, and marital dissolution", Journal of Marriage and the Family 46(4):853-859.

DISCUSSION PAPER SERIES

NO.

29. The Length of Working Life in Pakistan
P. Krishnan. April 1982.

30. Lotka Distribution for a Finite Mixture of Human Populations I
P. Krishnan and N.M. Lalu. September 1982.

31. Population Growth and Stability in Alberta Hinterland Boom-Towns
John W. Gartrell and Harvey Krahn. November 1982.

*32. Housing Change and Perceived Housing Quality in a Northern Alberta Boom-Town
John W. Gartrell and Harvey Krahn. February 1983.

*33. Rapid Growth and Social Disruption: Health and Well-Being in Ten Communities
John W. Gartrell. July 1983.

34. Socioeconomic Development, Medical Care and Nutrition as Determinants of Infant Mortality in Less Developed Countries
J. Jayachandran and George K. Jarvis, November 1983.

35. Interrelation Between Fertility and Non-Economic Characteristics in India: Results from a Log-Linear Model
P. Krishnan. April 1984.

36. Life Tables by Causes of Death, Canada 1975-1977
V. Cheung, R. Kapoor, E. Ng, N. Lalu, and P. Krishnan. August 1984.

37. Determinants of Fertility in Two Canadian Populations: A Causal Modeling Approach.
J. Jayachandran. December 1984.

38. Mortality Differences Among the Indigenous Populations of French and British Origin, and the Aboriginal Population of Canada, 1950-52 to 1970-72.
Frank Trovato. February 1985.

39. The Relationship Between Migration and the Provincial Divorce Rate in Canada, 1971 and 1978: A Reassessment.
Frank Trovato. February 1985.

40. Interprovincial Migration and Suicide in Canada, 1971 - 1978.
Frank Trovato. May 1985.

41. Economic Status of Immigrant Women at Age 30, Canada, 1981.
Carl F. Grindstaff and Frank Trovato. June 1985.

* Out of Print